

SWEDISH EXPEDITION TO THE NORTH ATLANTIC GULF STREAM

By LEONARD R. SCHNEIDER

After a successful three months' cruise during June, July, and August in 1929, Dr. J. W. Sandström's 1930 summer expedition into the North Atlantic Gulf Stream area came to an end 43 days after the party had embarked. Engine failure only 18 days from port caused the *Rane* to be turned about, and some 15 days later, under sail, the vessel reached the Norwegian town, Bodo, where repairs were made. From Bodo the vessel returned to Sweden.

This information appears in a feature article in the October 14 issue of the *Dagens Nyheter*, a Stockholm daily. Further items of interest contained in both the article and its accompanying map are given in what follows.

Doctor Sandström's expedition left western Sweden on July 24, heading for the Shetland Islands and Iceland. Near the Skagerak and in the North Sea the surface water was found to be unusually warm, the temperature being 16° C. Near the Shetlands a day or two later the sea-water temperature was 13.5° C., and immediately upon the western side of the islands the surface-water temperature was 12.94°. At this point, at a depth of 50 meters, there was a temperature of 9.89°; at 100 meters, 9.40°, and at 150 meters, 9.00°.

The *Rane* reached the Faroes on the 28th of July, and between the Faroes and Iceland temperatures of 9.89° at the surface, 9.78° at 50 meters depth, 8.30° at 100 meters, 7.35° at 200 meters, and 4.20° at 300 meters were recorded. On July 31, near Seydisfjord, Iceland, both the air and water temperatures were 5° C. At this point sea water at 50 meters depth was 4.32°.

It is interesting to note that only a few hours from Seydisfjord the sea water temperature rose from 5° to 9°. At 67° 43' N. and 13° 33' W. at 100 meters depth there was a temperature of 0°, the coldest recorded on the cruise. Over this cold water, from the surface down to 20 meters, the thermometer registered 7.35°. With the vessel near the western limit of the Gulf Stream, its course was directed eastward along the sixty-eighth degree of latitude, where the following increases in temperature were observed in the surface water between August 1 and 6. They were: 7.4°, 7.8°, 10.3°, 11.9°, 14.7°, and 16.0°. For the same days, but at a depth of 100 meters, these temperatures were recorded: 0°, 4°, 8°, 8°, 9°, and 10°. The warmest water was southwest of Lofoten.

On August 11 the *Rane* was at 72½° N. latitude and again at the western edge of the Gulf Stream. It was at this point that sails were resorted to after the engine trouble developed. From the records of the return trip, Doctor Sandstrom tells his readers that in the middle of the Skagerak, where about the 1st of September one may expect to find 4° C. water at a depth of 10 meters, the water on this date, 1930, had a remarkably high temperature, namely, 15.7° at the surface, 15.5° at 10 meters, and 9° at 60 meters. Doctor Sandstrom further remarks that this season the North Atlantic Gulf Stream is not only unusually warm in the north and west parts but also in the North Sea and Skagerak regions.

METEOROLOGICAL PECULIARITIES OF THE YAKIMA VALLEY, WASHINGTON

By EDWIN H. JONES

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A paper entitled "Meteorological Peculiarities of the Yakima Valley" might seem to be out of place in a convention dedicated to the fruit-frost and aviation phases of meteorology. It may be shown, however, that it is with these two activities of weather men that the weather abnormalities of the Yakima Valley are most directly connected.

At present the Yakima Valley project consists of 350,000 acres of irrigated land, most of which is highly cultivated. Its products are many, but fruit growing leads. In the average year there are shipped 48,650 carloads of products from the soil, 20,000 carloads of which are fruits. The total value of all these products is estimated at over \$40,000,000 per year. As an isolated and landlocked district surrounded by mountains and desert, this agricultural community is confronted at the outset by two fundamental problems. First, the successful protection of its crops during growth against frost and the other hazards of climate, and then satisfactory transportation and communication with the outside world. The fruit-frost, spraying, packing, and shipping seasons provide activity for the meteorologist. In the successful development of aviation, with which the future of Yakima probably is bound up to the highest extent, an additional opening is offered.

The Yakima Valley is not "a valley," but a series of valleys or depressions in the general terrain. While all are drained by the Yakima River and its tributaries,

there are no less than five distinct sections, each separated by sharp ridges of land rising from 800 to 1,500 feet above the valley floor, and with nothing more than narrow water gaps between for drainage both of water and air. The entire district slopes gently from an average elevation of about 1,600 feet above sea level at Ellensburg to 500 feet near Kennewick. The irrigable part is about 200 miles by road from end to end and perhaps 25 miles across at the widest place. Beginning at the north with the areas under irrigation and cultivation, there are: The Ellensburg or Kittitas, Selah, Naches, Upper Valley, and Lower Valley sections. Part of the Kennewick section is also drained by the Yakima River and is a part of the Yakima Valley. The Yakima Valley as a whole is closely adjacent to the Cascade Mountain system, the separating ridges being part of the foothills and the Cascade Mountain platform itself rising less than 25 miles directly to westward. It is this contiguity of the mountains, of course, which gives the Yakima Valley weather features peculiar unto itself.

Probably no person ever has attempted forecasts for the State of Washington without being agonized over the actions of the Yakima weather. The most common anomalies are temperatures that fall below the disaster point when other east-portion districts run comparatively safe, or occasionally, minimum temperatures that show a rise when other stations have no change. And there is the tendency to extreme dryness, even during the passage of a